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These values of the diameters would be represented in miles by—

Ceres	520	miles
Pallas	304	„
Vesta	241	„

These differ somewhat—and in the case of *Ceres* considerably—from the preliminary values (from the first three observations) as given in the paper in *Astronomy and Astro-Physics* referred to, viz.

Ceres	599 miles	(0″·481 at Δ 2·7673	or 1″·330 at Δ 1)
Pallas	273 „	(0·211 „ „	0·605 „)
Vesta	237 „	(0·191 „ „	0·527 „)

The first few measures of *Ceres* were doubtless somewhat too large, as is shown in the series for that planet. We must remember, however, that the entire quantities themselves that are measured are very small in consideration of the great distance of the objects from us, a tenth of a second at the mean distance of *Ceres* being represented by 125 miles.

I have refrained from giving the probable errors of these results, for such seldom mean anything except to show the accordance of the measures among themselves. I have instead inserted a column of "deviations from the mean."

I think another year's measures will give fairly satisfactory diameters to these three asteroids—better, I believe, than can be obtained by any other method.

Mr. E. J. Stone's values for the diameters of these asteroids, viz.

Ceres	196	miles
Pallas	171	„
Vesta	214	„

were deduced from measures of *Ceres* and *Pallas* by Herschel and Lamont, whose instruments were certainly inadequate to deal with such quantities as the diameters of the minor planets.

Mount Hamilton:
1894 *August* 28.

Note on Professor Turner's Paper on the Reduction of Measures of Photographic Plates (Monthly Notices, vol. liv., 1893 November). By F. W. Dyson, M.A.

In Note IV. of this paper several small errors are made, which can easily be corrected in the margin, but which deserve to be noticed on account of the importance of the subject.

On p. 23, after "The coefficient of y_1 in the numerator x_2 is"

$$\textit{read}\ (-\sec P_2 \sin \overline{A_1 - A_2})/D$$

$$= -X_{12} \cot P_1 \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (14)$$

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After "The coefficient of x_1 in the numerator of y_2 is"

$$\textit{read}\ (\sec P_1 \sin \overline{A_1 - A_2})/D$$
$$= -X_{21} \cot P_2 \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \qquad (15)$$

These corrections should be carried through into formulæ (18) on p. 24. In the first line,

$$\textit{instead of}\ y_1 \,.\, X_{21} \cot P_2$$
$$\textit{read}\ -y_1\, X_{12} \cot P_1,$$

and in the second line,

$$\textit{instead of}\ x_1\, X_{12} \cot P_1$$
$$\textit{read}\ -x_1\, X_{21} \cot P_2.$$

These rigorous formulæ ought to be used instead of the approximate ones at the bottom of the page, for although the coefficients of x_1 in the first line and y_1 in the second line only differ from unity by quantities of the second order, yet these differences are of the same order of magnitude as the constants *a*, *b*, &c., which would be obtained by comparison of the measures of two actual photographs.

These coefficients of x_1 and y_1 are found to be

$$1 - \tfrac{1}{2}(X_{12}^2 \cot^2 P_1 - Y_{12}^2).$$

and

$$1 - \tfrac{1}{2}(\cot P_1 \cot P_2 - 1)\, X_{12}\, X_{21}$$

to the second order, but there is no objection to computing the coefficients directly as they are given in formulæ (18), as Y_{12} approximates to $-Y_{21}$ in the general case (not to Y_{21}, as in the particular case given where the terms of the first order vanish), and consequently the fractions do not take an indeterminate form.

One other point which may be noticed refers to the paragraph at the end of Professor Turner's paper. Although

$$a_{1n} = a_{12} + a_{23} + \quad . \quad . \quad . \quad + a_{\overline{n-1}\,.\,n}.$$
$$c_{1n}\ \textit{does not} = c_{12} + c_{23} + \quad . \quad . \quad . \quad + c_{\overline{n-1}\,.\,n}.$$

but differs from this by the sum of a number of terms of the form $a_{23}\, X_{12}$, $b_{23}\, Y_{12}$. The corrected form of this relation is rather cumbrous set down in a formula, but in practice would be quite easy to apply.

Blackheath :
1894 *September* 20.

[Mr. Dyson allows me to state here that I am much obliged to him for correcting these errors, the occurrence of which will be understood, and perhaps pardoned by those who have experienced the difficulties of breaking fresh ground.—H. H. T.]

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